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BUREAU OF MINES MINERALS YEARBOOK

The Mineral Industry of Austria

UNITED STATES DEPARTMENT OF THE INTERIOR

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The Mineral Industry of Austria

By Harold R. Newman[1]

The mining and mineral processing industries of Austria continued to contribute a moderate share to the gross domestic product (GDP). Mining operations by state-owned companies represented a major proportion of production, although contributions from private mining companies were significant. The Austrian Government had recognized the problems inherent with a nationalized industry and embarked on a policy of fiscal austerity, regulatory reform and economic restructuring. State industries, which soaked up the major proportion of Government subsidies and audit guarantees, were made more efficient and competitive. Under a typical restructuring, the Government retained a 51% stake in a state-run company while the remaining 49% was to be sold to the public in stages.

Real growth in the GDP slowed to 1% in 1987, as modest increases in domestic consumption offset declines in exports. The economic policy was expected to put Austria back on a growth path and headed toward a freer, more entrepreneurial economy. The problems of the state-owned sector masked the fact that most Austrian industry was healthy and in private ownership. Although no private Austrian firms were large by international standards, several were leaders in certain niches, such as specialized metallurgy and railroad track-laying machinery.

PRODUCTION

Industrial production, excluding energy, declined 2%. This was due mainly to falling exports and poor sales by state-owned steel firms. Restructuring efforts were underway in the steel industry with extensive layoffs initiated. Mining and metals production declined slightly except for aluminum, antimony, and lead. Production of industrial mineral commodities remained more or less steady. The output of the mining industry decreased overall by almost 5%, and the value of mineral products decreased by more than 14%. The worldwide economic problems with which the mining industry had to contend was well known. The Austrian mining and minerals sector was increasing its chance for survival by undertaking measures such as reorganization, minimizing administration, renewal of process technologies, modernization, and automation including computized controls. There were 86 active mines in Austria, 55 of them underground, 20 on the surface, and 11 with both underground and surface sections.

Table 1.—Austria: Production of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1983	1984	1985	1986[p]	1987[p]
METALS					
Aluminum metal:					
Primary	94,200	95,833	94,106	92,453	93,414
Secondary	56,785	56,579	58,592	56,354	62,731
Total	150,985	152,412	152,698	148,807	156,145
Antimony, mine output, Sb content of concentrate	659	523	477	514	450
Cadmium metal	46	49	52	52	26
Copper:					
Smelter, secondary	30,000	r24,600	25,900	25,500	e26,000
Refined:					
Primary	8,769	9,592	8,207	7,067	3,855
Secondary	33,131	34,293	34,966	32,579	32,924
Total	41,900	43,885	43,173	39,646	36,779
Germanium, Ge content of concentrate kilograms	6,000	4,800	5,500	6,300	e6,700
Iron and steel:					
Iron ore and concentrate:					
Gross weight thousand tons	3,540	3,600	3,270	3,120	3,050
Fe content do	1,167	1,138	1,019	976	953
Metal:					
Pig iron do	3,320	3,745	3,704	3,349	3,451
Ferroalloys, electric-furnace do	14	13	12	r e12	12
Steel, crude do	4,411	4,870	4,660	4,292	4,301
Semimanufactures do	3,555	3,842	3,760	3,462	3,432
Lead:					
Mine output, Pb content of concentrate	4,290	4,151	7,500	5,865	6,552
Metal:					
Smelter:					
Primary	4,210	1,707	1,930	e1,500	e2,600
Secondary	12,860	16,476	15,601	e15,000	e16,500
Total	17,070	18,183	17,531	e16,500	e19,100
Refined:					
Primary	12,000	10,000	10,000	r e6,000	e5,000
Secondary	11,500	16,200	15,500	r e19,000	e15,000
Total	23,500	26,200	25,500	r e25,000	e20,000
Manganese, Mn content of domestic iron ore	65,284	67,101	60,074	58,945	57,486
Tungsten, mine output, W content of concentrate	1,408	1,632	1,481	1,387	1,250
Zinc:					
Mine output, Zn content of concentrate	19,432	20,879	21,704	16,290	15,735
Metal refined	23,000	24,000	25,000	24,000	24,300
INDUSTRIAL MINERALS					
Cement, hydraulic thousand tons	4,907	4,899	4,560	4,569	4,522
Clays:					
Illite	381,598	285,553	212,678	268,451	275,921
Kaolin:					
Crude	402,511	455,695	500,844	444,852	444,927
Marketable	83,558	99,541	100,151	46,291	188,533
Other	32,946	18,058	49,161	33,037	12,961
Feldspar, crude	1,063	2,554	13,570	2,850	4,692
Graphite, crude	40,418	43,789	30,764	36,167	39,391
Gypsum and anhydrite, crude	750,921	740,117	693,998	701,749	664,452
Lime thousand tons	1,140	1,262	1,301	1,275	1,387
Magnesite:					
Crude do	1,006	1,183	1,255	1,084	947
Sintered or dead-burned do	320	377	389	316	345
Caustic calcined do	99	93	75	73	58
Nitrogen: N content of ammonia[e] do	[2]495	500	500	450	450
Pigments, mineral: Micaceous iron oxide	11,734	e11,500	11,583	11,730	10,807
Pumice (trass)	2,458	9,666	6,981	5,808	6,922
Salt:					
Rock thousand tons	1	1	1	2	1
In brine:					
Evaporated do	359	419	420	486	484
Other do	141	239	230	250	250
Total do	501	659	650	738	735

See footnotes at end of table.

Table 1.--Austria: Production of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1983	1984	1985	1986[p]	1987[p]
INDUSTRIAL MINERALS —Continued					
Sand and gravel:					
Quartz sand thousand tons	816	782	795	798	684
Other do.	15,318	15,387	14,593	8,861	9,322
Total do.	16,134	16,169	15,328	9,659	10,006
Sodium compounds, n.e.s.:[e]					
Carbonate, synthetic do.	170	150	150	150	150
Sulfate, synthetic do.	55	50	50	55	55
Stone:[3]					
Dolomite do.	938	981	1,291	1,308	[e]1,400
Quartz and quartzite do.	171	223	176	196	196
Other including limestone and marble do.	11,977	11,903	11,667	9,250	9,540
Total do.	13,086	13,107	13,134	10,754	11,136
Sulfur:					
Byproduct:					
Of metallurgy	9,429	10,113	11,204	10,986	10,448
Of petroleum and natural gas	32,000	28,342	24,250	29,348	30,946
From gypsum and anhydrite	26,122	26,449	26,547	23,837	13,091
Total	67,551	64,904	62,001	64,171	54,485
Talc and soapstone	122,128	134,011	131,454	133,319	129,959
MINERAL FUELS AND RELATED MATERIALS					
Coal, brown and lignite thousand tons	3,041	2,901	3,081	2,969	2,786
Coke do.	1,725	1,854	1,751	1,744	1,727
Gas, natural:					
Gross million cubic feet	42,850	44,931	41,102	39,269	41,223
Marketed do.	34,205	37,084	34,325	32,537	34,330
Oil shale	1,060	970	620	(4)	28
Petroleum:					
Crude thousand 42-gallon barrels	8,847	8,404	7,999	7,783	7,410
Refinery products:					
Gasoline do.	16,407	17,499	18,184	[e]18,100	19,773
Kerosene and jet fuel do.	1,079	1,461	1,452	1,381	1,517
Distillate fuel oil do.	15,267	15,538	16,482	18,582	23,209
Residual fuel oil do.	11,646	13,064	16,040	13,530	[e]12,000
Lubricants do.	603	557	604	1,591	[e]1,200
Liquefied petroleum gas do.	4,966	5,509	5,479	5,145	[e]5,100
Bitumen do.	1,218	1,658	1,363	1,427	1,382
Unspecified do.	676	235	182	220	225
Refinery fuel and losses do.	3,064	3,090	3,292	3,502	2,759
Total do.	54,926	58,611	63,078	63,478	65,365

[e]Estimated. [p]Preliminary. [r]Revised.
[1]Table includes data available through Aug. 1988.
[2]Reported figure.
[3]Excluding stone used by the cement and iron and steel industries.
[4]Revised to zero.

TRADE

About 40% of Austrian goods and services was exported. Merchandise exports declined for the second year in a row; increased sales to Western Europe could not fully compensate for decreases in all other markets. Austria was not part of the European Economic Community (EEC), but two-thirds of its exports went to EEC members. The Austrian Government's concern was that the unification of the EEC market, scheduled for 1992, might cause EEC members to trade more among themselves and less with nonmembers, leaving Austria a no-man's land between the trading groups of Western and Eastern Europe. Austria sought closer integration with the EEC by aligning standards and regulations to EEC requirements and negotiating continued access to the EEC market. Because of Austria's heavy dependence on foreign trade, its Government generally supported efforts to create a freer and fairer global trading system.

Table 2.—Austria: Exports of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS				
Aluminum:				
Ore and concentrate	(2)	626	--	Italy 572; Hungary 54.
Metal including alloys:				
Scrap	33,248	NA		
Unwrought	31,072	31,317	--	West Germany 12,612; Italy 6,215; France 5,892.
Semimanufactures	98,145	102,564	1,366	West Germany 37,692; Switzerland 8,058; Italy 7,605.
Copper:				
Matte and speiss including cement copper	24	2	--	All to West Germany.
Sulfate	123	NA		
Metal including alloys:				
Scrap	19,525	NA		
Unwrought	26,758	24,327	--	Italy 14,431; West Germany 6,851; Switzerland 1,880.
Semimanufactures	16,483	18,869	190	West Germany 8,639; Italy 3,036; France 2,299.
Gold: Metal including alloys, unwrought and partly wrought troy ounces	16,397	NA		
Iron and steel:				
Iron ore and concentrate excluding roasted pyrite	50	7,769	--	West Germany 7,750; Hungary 19.
Metal:				
Scrap	32,191	22,305	--	Italy 8,298; West Germany 7,736; Switzerland 3,295.
Pig iron, cast iron, related materials	8,827	7,671	90	France 2,181; West Germany 1,457; Italy 891.
Ferroalloys, unspecified	r12,264	12,857	473	India 2,005; Italy 1,573; Romania 1,367.
Steel, primary forms	417,172	324,261	28,140	West Germany 165,736; Italy 42,742.
Semimanufactures:				
Bars, rods, angles, shapes, sections thousand tons	395	339	5	West Germany 109; Italy 93; France 39.
Universals, plates, sheets do	1,513	1,453	67	West Germany 424; U.S.S.R. 348; Italy 211.
Hoop and strip do	184	181	1	West Germany 65; Switzerland 25; Italy 16.
Rails and accessories do	123	63	(2)	Switzerland 27; Brazil 7; Algeria 5.
Wire do	61	53	3	West Germany 24; Italy 7; Switzerland 5.
Tubes, pipes, fittings do	508	416	11	U.S.S.R. 200; West Germany 65; Italy 21.
Castings and forgings, rough do	17	12	(2)	West Germany 6; Netherlands 1; Switzerland 1.
Lead:				
Ore and concentrate	1,022	--		
Metal including alloys:				
Scrap	49	NA		
Unwrought	988	1,126	--	Yugoslavia 568; West Germany 425; Hungary 50.
Semimanufactures	23	68	--	West Germany 44; Tunisia 10; Denmark 8.
Mercury 76-pound flasks	84	NA		
Nickel:				
Matte and speiss	3	56	--	All to Yugoslavia.
Metal including alloys:				
Scrap	295	NA		
Unwrought	66	29	--	West Germany 28.
Semimanufactures	1,641	821	36	West Germany 367; Switzerland 40; Yugoslavia 34.
Platinum-group metals: Metals including alloys, unwrought and partly wrought value, thousands	$3,467	$2,960	--	West Germany $2,186; United Kingdom $455; France $133.

See footnotes at end of table.

Table 2.—Austria: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
METALS —Continued				
Silver:				
Waste and sweepings, value, thousands	$57	--		
Metal including alloys, unwrought and partly wrought, do.	$7,261	$5,242	--	West Germany $3,143; Switzerland $783; Yugoslavia $709.
Tin: Metal including alloys:				
Scrap	10	--		
Unwrought	17	17	--	West Germany 15; Yugoslavia 2.
Semimanufactures	4	(3)	--	Mainly to Switzerland.
Titanium: Oxides	523	NA		
Zinc:				
Blue powder	58	NA		
Metal including alloys:				
Scrap	1,123	NA		
Unwrought	4,371	4,035	--	Yugoslavia 2,072; Hungary 1,110; West Germany 709.
Semimanufactures	227	165	15	West Germany 96; Italy 17.
Other:				
Ores and concentrates	r1,023	754	37	West Germany 438; Poland 90; Israel 85.
Oxides and hydroxides	5,127	NA		
Ashes and residues	101,089	NA		
Base metal including alloys, all forms	r7,643	8,891	587	West Germany 3,433; United Kingdom 2,079; Italy 1,495.
Waste and sweepings of unspecified precious metals, value, thousands	$3,992	$6,615	--	West Germany $5,656; France $857; United Kingdom $102.
INDUSTRIAL MINERALS				
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc.	37	140	--	All to West Germany.
Artificial: Silicon carbide	92	NA		
Dust and powder of precious and semiprecious stones including diamond, value, thousands	$110	$17	--	Switzerland $13; Philippines $3; Iraq $1.
Grinding and polishing wheels and stones	14,030	13,831	266	West Germany 2,472; Italy 1,516; France 1,012.
Asbestos, crude	1	9	--	All to Yugoslavia.
Barite and witherite	7	3	--	All to West Germany.
Boron materials:				
Crude natural borates	20	3	--	Do.
Oxides and acids	10	NA		
Cement	14,374	21,944	--	Hungary 11,193; West Germany 8,601; Italy 1,682.
Chalk	1,927	2,592	--	Hungary 1,586; Czechoslovakia 725; West Germany 132.
Clays, crude	60,608	74,655	10	Hungary 33,310; West Germany 32,539; Italy 5,856.
Diamond:				
Gem, not set or strung, value, thousands	$134	$741	$308	Israel $328; Hungary $78.
Industrial stones, do.	$60	$75	--	Hungary $65; Egypt $5; Belgium-Luxembourg $3.
Diatomite and other infusorial earth	2,471	2,203	--	Bulgaria 765; Yugoslavia 656; Hungary 464.
Feldspar, fluorspar, related materials	20	--		
Fertilizer materials:				
Crude, n.e.s.	382	13,078	--	Czechoslovakia 12,745; Switzerland 288; Italy 15.
Manufactured	794,235	730,312	2	West Germany 416,146; Italy 70,613; East Germany 65,000.
Graphite, natural	11,828	10,284	67	West Germany 3,581; Poland 2,009; France 936.
Gypsum and plaster	141,461	119,295	--	West Germany 116,779; Italy 1,570; Hungary 572.
Lime	1,229	1,249	--	West Germany 1,054; Hungary 88; U.S.S.R. 76.
Magnesium compounds	154,806	138,304	3,146	West Germany 32,237; France 23,500; Venezuela 21,071.
Mica:				
Crude including splittings and waste	316	1,659	--	West Germany 747; Italy 483; France 96.
Worked including agglomerated splittings	274	247	(3)	West Germany 69; India 35; Yugoslavia 23.
Pigments, mineral:				
Natural, crude	7,611	NA		
Iron oxides and hydroxides, processed	2,702	NA		

See footnotes at end of table.

Table 2.—Austria: Exports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Destinations, 1986	
			United States	Other (principal)
INDUSTRIAL MINERALS —Continued				
Precious and semiprecious stones other than diamond:				
Natural ..... value, thousands	$375	$450	$3	West Germany $143; Switzerland $127; Israel $67.
Synthetic ..... do.	$4,229	$6,428	$396	Egypt $1,847; Switzerland $923; West Germany $870.
Pyrite, unroasted	47	7	--	All to West Germany.
Salt and brine	1,506	1,621	--	West Germany 722; Hungary 519; Greece 207.
Sodium compounds, n.e.s.:				
Carbonate, manufactured	29	NA		
Sulfate, manufactured	80,826	NA		
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	130,979	144,351	--	West Germany 100,984; Switzerland 41,990; Italy 1,049.
Worked	60,132	66,150	284	West Germany 57,400; Switzerland 7,910; Yugoslavia 347.
Dolomite, chiefly refractory-grade	24,943	29,589	--	West Germany 24,411; Venezuela 3,980; India 410.
Gravel and crushed rock	544,124	691,135	--	Switzerland 423,037; West Germany 240,271; Netherlands 10,173.
Limestone other than dimension	1,064	917	--	West Germany 849; Yugoslavia 63.
Quartz and quartzite	60	82	--	Yugoslavia 26; U.S.S.R. 15; Italy 9.
Sand other than metal-bearing	145,332	97,700	--	West Germany 62,593; Switzerland 32,624; Italy 1,625.
Sulfur:				
Elemental, crude including native and byproduct	130	419	--	Yugoslavia 410; West Germany 9.
Sulfuric acid	7,525	NA		
Talc, steatite, soapstone, pyrophyllite	110,150	113,369	--	West Germany 56,684; Italy 15,359; Switzerland 9,838.
Other:				
Crude	3,914	20,475	110	West Germany 14,227; United Kingdom 1,747; Italy 85.
Slag and dross, not metal-bearing	90,389	92,220	--	West Germany 87,878; Italy 2,692; Switzerland 1,547.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural	14	2	--	Iraq 1.
Carbon black	18	NA		
Coal:				
Anthracite and bituminous	4	50	--	Greece 48; Switzerland 2.
Briquet of anthracite and bituminous coal	122	83	--	Switzerland 71; Yugoslavia 12.
Lignite including briquets	8,667	5,437	--	West Germany 5,368; Switzerland 69.
Coke and semicoke	4,526	5,107	--	West Germany 5,008; Switzerland 76; Egypt 23.
Peat including briquets and litter	11,779	10,580	--	Italy 7,927; West Germany 2,403; Greece 86.
Petroleum refinery products:				
Liquefied petroleum gas thousand 42-gallon barrels	371	49	(2)	Italy 30; Yugoslavia 13; Switzerland 6.
Gasoline ..... do.	2,156	1,585	--	West Germany 1,584.
Mineral jelly and wax ..... do.	99	130	--	Netherland 113; Switzerland 8; West Germany 2.
Kerosene and jet fuel ..... do.	161	25	--	West Germany 21; Finland 2; Sweden 1.
Distillate fuel oil ..... do.	284	164	--	West Germany 157; Yugoslavia 4; Romania 3.
Lubricants ..... do.	554	439	--	Hungary 116; Czechoslovakia 115; Iran 49.
Residual fuel oil ..... do.	2,529	1,283	--	Hungary 1,382.
Bitumen and other residues ..... do.	68	30	--	West Germany 17; Switzerland 4; Italy 3.
Bituminous mixtures ..... do.	27	42	--	Algeria 19; Pakistan 14; West Germany 3.
Petroleum coke ..... do.	--	1	--	All to Germany.

[r] Revised. NA Not available.
[1] Table prepared by Josef Plachy.
[2] Less than 1/2 unit.

Table 3.—Austria: Imports of mineral commodities[1]

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986: United States	Sources, 1986: Other (principal)
METALS				
Aluminum:				
Ore and concentrate	46,342	312,800	539	West Germany 151,034; Hungary 68,562; France 60,489.
Oxides and hydroxides	303,515	NA		
Metal including alloys:				
Scrap	53,109	NA		
Unwrought	78,148	93,413	1	West Germany 49,479; Norway 17,958; Hungary 5,111.
Semimanufactures	54,591	54,559	30	West Germany 22,027; Switzerland 9,308; Italy 6,252.
Copper:				
Sulfate	1,059	NA		
Metal including alloys:				
Scrap	44,156	NA		
Unwrought	13,314	12,499	29	Republic of South Africa 4,763; West Germany 3,081; Zimbabwe 1,629.
Semimanufactures	74,297	77,504	39	West Germany 40,552; Italy 9,671; Belgium-Luxembourg 8,149.
Gold: Metal including alloys, unwrought and partly wrought troy ounces	107,545	NA		
Iron and steel:				
Iron ore concentrate:				
Excluding roasted pyrite thousand tons	3,684	3,201	(2)	U.S.S.R. 1,383; Sweden 738; Canada 467.
Pyrite, roasted do.	20	13	--	Yugoslavia 12.
Metal:				
Scrap	2:9,048	115,029	19	West Germany 49,770; U.S.S.R. 28,201; Czechoslovakia 26,495.
Pig iron, cast iron, related materials	55,413	43,815	20	Canada 14,211; U.S.S.R. 9,948; West Germany 9,156.
Ferroalloys, unspecified	r74,526	68,237	48	Yugoslavia 24,526; West Germany 10,915; Norway 10,882.
Steel, primary forms	147,956	230,101	1	Czechoslovakia 96,977; West Germany 51,298; Hungary 47,248.
Semimanufactures:				
Bars, rods, angles, shapes, sections	306,473	326,229	97	West Germany 108,303; Italy 96,954; France 25,660.
Universals, plates, sheets	252,974	280,280	45	West Germany 123,639; Belgium-Luxembourg 34,872; Italy 16,890.
Hoop and strip	95,191	98,820	13	West Germany 64,434; Italy 14,421; Switzerland 6,966.
Rails and accessories	3,147	2,734	--	West Germany 1,632; Switzerland 811; Belgium-Luxembourg 211.
Wire	38,320	36,617	15	West Germany 12,251; Belgium-Luxembourg 11,456; France 5,026.
Tubes, pipes, fittings	189,871	228,840	43	West Germany 107,320; Italy 55,042; East Germany 9,477.
Castings and forgings, rough	14,784	14,744	1	West Germany 11,500; Italy 807; Switzerland 598.
Lead:				
Ore and concentrate	3,997	4,124	--	Italy 2,635; Algeria 1,414; West Germany 75.
Metal including alloys:				
Scrap	6,745	NA		
Unwrought	37,501	38,516	151	West Germany 16,260; United Kingdom 6,414; Republic of South Africa 5,550.
Semimanufactures	1,056	997	(3)	West Germany 826; United Kingdom 141; Belgium-Luxembourg 19.
Manganese: Ore and concentrate, metallurgical-grade	666	437	--	Netherland. 423; West Germany 14.
Mercury 76-pound flasks	189	NA		
Nickel:				
Ore and concentrate	22			
Matte and speiss	1,297	907	--	Netherlands 643; Canada 68; Australia 36.
Metal including alloys:				
Scrap	572	NA		
Unwrought	2,663	3,029	61	Republic of South Africa 929; U.S.S.R. 473; Canada 271.
Semimanufactures	1,690	679	27	West Germany 447; United Kingdom 63; France 50.

See footnotes at end of table.

Table 3.—Austria: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
METALS —Continued				
Platinum-group metals: Metals including alloys, unwrought and partly wrought value, thousands	$4,291	$4,436	$1,242	West Germany $2,068; Belgium-Luxembourg $431.
Silver:				
Waste and sweepings[3] do.	$3	$132	--	All from West Germany.
Metal including alloys, unwrought and partly wrought do.	$31,294	$14,922	$3	West Germany $11,736; Switzerland $1,587; Yugoslavia $668.
Tin: Metal including alloys:				
Scrap	19	NA		
Unwrought	501	525	2	West Germany 297; Brazil 60; Indonesia 51.
Semimanufactures	144	152	(2)	West Germany 128; Belgium-Luxembourg 12; Netherlands 10.
Zinc:				
Ore and concentrate	10,793	10,133	--	All from Italy.
Blue powder	1,439	NA		
Metal including alloys:				
Scrap	198	NA		
Unwrought	8,686	11,493	--	West Germany 4,624; Belgium-Luxembourg 4,383; Netherlands 1,223.
Semimanufactures	2,256	4,091	(2)	West Germany 2,190; Belgium-Luxembourg 1,001; France 570.
Other:				
Ores and concentrates	r61,119	63,485	1,376	Republic of South Africa 44,698; West Germany 3,038; Turkey 2,299.
Oxides and hydroxides	20,140	NA		
Ashes and residues	150,036	NA		
Base metals including alloys, all forms	r7,151	19,014	1,124	U.S.S.R. 14,062; West Germany 904.
INDUSTRIAL MINERALS				
Abrasives, n.e.s.:				
Natural: Corundum, emery, pumice, etc	294	622	10	West Germany 283; Italy 246; Spain 46.
Artificial:				
Corundum	13,443	NA		
Silicon carbide	2,998	NA		
Dust and powder of precious and semi-precious stones including diamond value, thousands	$7,595	$8,669	$7,845	Switzerland $403; Ireland $301.
Grinding and polishing wheels and stones	1,716	1,705	4	West Germany 786; Italy 293; Spain 186.
Asbestos, crude	21,595	15,149	3	Canada 8,979; U.S.S.R. 3,085; Zimbabwe 1,176.
Barite and witherite	5,654	9,067	--	Turkey 3,348; West Germany 2,198; Ireland 2,079.
Boron materials:				
Crude natural borates	18,320	17,862	3,123	Turkey 14,355; Italy 289.
Oxides and acids	561	NA		
Cement	56,927	88,551	--	Yugoslavia 32,587; Poland 19,650; Italy 13,245.
Chalk	9,580	12,000	--	Italy 8,751; West Germany 1,735; France 1,490.
Clays, crude	195,869	188,215	2,014	West Germany 70,533; Czechoslovakia 64,652; Brazil 23,707.
Cryolite and chiolite	206	204	--	Denmark 202; West Germany 2.
Diamond:				
Gem, not set or strung value, thousands	$7,654	$5,382	$41	Israel $2,794; Belgium-Luxembourg $981; India $466.
Industrial stones do.	$490	$654	$13	West Germany $209; Hungary $120; Republic of South Africa $117.
Diatomite and other infusorial earth	12,981	14,271	1,290	Czechoslovakia 4,841; Hungary 2,938; Denmark 2,505.
Feldspar, fluorspar, related materials	17,564	NA		
Fertilizer materials:				
Crude, unspecified	r443,899	430,697	44,442	Algeria 114,951; Israel 92,924; Togo 88,854.
Manufactured:				
Ammonia	79,488	NA		
Unspecified and mixed	r648,724	651,679	7,900	West Germany 205,883; France 80,594; East Germany 79,379.

See footnotes at end of table.

Table 3.—Austria: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)[2]
INDUSTRIAL MINERALS —Continued				
Graphite, natural	3,280	4,966	(3)	China 4,206; West Germany 242; India 180.
Gypsum and plaster	11,926	12,749	--	West Germany 12,141; Italy 414; France 80.
Lime	2,676	2,602	--	Yugoslavia 2,411; West Germany 669; Poland 501.
Magnesium compounds	130,270	122,064	1,030	Turkey 35,796; Italy 26,694; Mexico 10,909.
Mica:				
Crude including splittings and waste	321	183	1	West Germany 102; United Kingdom 50; Norway 25.
Worked including agglomerated splittings	235	226	(3)	France 108; Belgium-Luxembourg 43; India 42.
Pigments, mineral:				
Natural, crude	927	NA		
Iron oxides and hydroxides, processed	5,141	NA		
Precious and semiprecious stones other than diamond:				
Natural value, thousands	$2,884	$3,121	$80	West Germany $1,665; Switzerland $275; India $268.
Synthetic do.	$1,677	$2,581	$133	Switzerland $790; West Germany $634; U.S.S.R. $401.
Pyrite, unroasted	804	668	--	Italy 430; West Germany 184; Hungary 53.
Salt and brine	134	211	(3)	France 90; West Germany 74; Israel 34.
Sodium compounds, n.e.s.:				
Carbonate, manufactured	2,499	NA		
Sulfate, manufactured	419	NA		
Stone, sand and gravel:				
Dimension stone:				
Crude and partly worked	40,257	43,003	17	Italy 23,536; Republic of South Africa 5,329; France 2,533.
Worked	56,490	61,319	2	Italy 45,564; West Germany 9,956; Yugoslavia 4,394.
Dolomite, chiefly refractory grade	5,277	10,804	--	West Germany 9,839; Italy 684; Norway 191.
Gravel and crushed rock	216,429	204,855	--	West Germany 183,085; Italy 20,573; Czechoslovakia 501.
Limestone other than dimension	1,349	1,610	--	Yugoslavia 946; West Germany 663.
Quartz and quartzite	28,829	25,061	(3)	West Germany 13,379; Hungary 10,774; Norway 789.
Sand other than metal-bearing	407,812	366,503	2	West Germany 183,730; Czechoslovakia 165,425; East Germany 9,950.
Sulfur:				
Elemental:				
Crude including native and byproduct	90,589	90,590	--	Poland 39,538; West Germany 32,217; Hungary 18,020.
Colloidal, precipitated, sublimed	326	NA		
Sulfuric acid	32,632	NA		
Talc, steatite, soapstone, pyrophyllite	2,732	6,198	(3)	India 3,000; France 2,373; Norway 505.
Other:				
Crude	97,514	72,367	2,383	West Germany 26,654; Hungary 24,462; Czechoslovakia 5,262.
Slag and dross, not metal-bearing	47,967	41,969	--	Italy 24,240; West Germany 12,009; Yugoslavia 3,643.
MINERAL FUELS AND RELATED MATERIALS				
Asphalt and bitumen, natural	3,319	2,654	81	Trinidad and Tobago 2,135; Hungary 276; West Germany 144.
Carbon black value, thousands	$19,567	NA		
Coal:				
Anthracite and bituminous thousand tons	3,577	3,731	521	Poland 1,641; U.S.S.R. 680; Czechoslovakia 692.
Briquets of anthracite and bituminous coal do.	21	22	--	West Germany 21.
Lignite including briquets do.	827	686	--	East Germany 326; West Germany 218; Yugoslavia 130.
Coke and semicoke do.	1,274	909	--	Czechoslovakia 304; West Germany 256; Poland 148.

See footnotes at end of table.

Table 3.—Austria: Imports of mineral commodities[1] —Continued

(Metric tons unless otherwise specified)

Commodity	1985	1986	Sources, 1986	
			United States	Other (principal)
MINERAL FUELS AND RELATED MATERIALS —Continued				
Gas, natural: Gaseous million cubic feet	148,331	NA		
Peat including briquets and litter	59,448	62,687		West Germany 46,429; U.S.S.R. 9,630; Poland 3,432.
Petroleum:				
Crude thousand 42-gallon barrels	38,435	45,244		Libya 16,092; Algeria 6,433; Nigeria 5,425.
Refinery products:				
Liquefied petroleum gas do	1,793	NA		
Gasoline do	4,887	4,522		Italy 2,238; West Germany 1,325; Hungary 592.
Mineral jelly and wax do	110	123	[2]	West Germany 50; Hungary 26; Czechoslovakia 20.
Kerosene and jet fuel do	908	754	[2]	Hungary 503; Czechoslovakia 130; West Germany 69.
Distillate fuel oil do	3,758	3,368	[2]	Hungary 1,858; West Germany 635; Yugoslavia 316.
Lubricants do	5,426	5,402	6	Hungary 2,242; Czechoslovakia 1,094; U.S.S.R. 1,033.
Residual fuel oil do	5,883	7,399		West Germany 2,777; Czechoslovakia 2,701; Yugoslavia 1,436.
Bitumen and other residues do	1,827	1,981		West Germany 719; Yugoslavia 551; Hungary 289.
Bituminous mixtures do	29	32	[2]	West Germany 23; Netherlands 4; Italy 3.
Petroleum coke do	492	484	88	West Germany 323; United Kingdom 27.

[1]Revised. NA Not available.
[2]Table prepared by Jozef Plachy.
[3]Less than 1/2 unit.
[4]May include other precious metals.

COMMODITY REVIEW

METALS

Aluminum.—Austria Metall AG and Pechiney of France signed an agreement with CVG Alcasa of Venezuela to construct a 150,000-ton-per-year aluminum smelter at Puerto Ordaz, Venezuela. The plant was expected to be operational by 1990. Austria Metall withdrew from another aluminum project, Aluminio de Sur S.A. (Alusuri), in which it had a 49% interest. The Venezuelan wire-rod producer Suramericana de Aleaciones Laminados (Sural) was to look for other potential partners. The smelter was scheduled to start up in early 1990.

Iron and Steel.—Voest-Alpine AG, Midrex Corp. of the United States, and Siderúrgica Venezolana S.A. (Sivensa) signed a letter of intent in mid-1987 for construction of a direct-reduction iron plant in Venezuela. The plant, with an annual capacity of 400,000 tons of hot briquetted iron, was to be built near Puerto Ordaz. Production would be split almost evenly between domestic use and exports. ÖIAG, the state holding company, announced that Voest-Alpine was to be split into three separate operating groups covering steel, engineering, and plantmaking, with Voest-Alpine becoming a holding company with no particular operative functions.

Lead and Zinc.—Bleiberger Bergwerks-Union AG (BBU) operated a lead-zinc mine at Bleiberg-Kreuth. Economical mining of these metals required continuous research. The irregular metallization of the ore bodies required complex mining methods with high production and labor costs. The mine was the only producer of lead and zinc in the country and was owned by the Government.

Other Metals.—BBU operated Austria's antimony mine, in the state of Burgenland. The production of stibnite continued to decline, and the mine was expected to be in operation only a few more years. BBU was exploring two areas in Carinthia and Tyrol for gold. Both projects were being carried

out in cooperation with foreign mining companies. Wolfram Bergbau-und Hüttengesellschaft mbH's Westfield Mine at Mitterstill produced 288,000 tons of scheelite in 1987. The underground mine became operational in 1986 after the company closed its open pit operation at Ostfeld and was continuing to operate in the face of a very difficult market situation for tungsten.

INDUSTRIAL MINERALS

Cement.—The Austrian cement industry, with 13 companies, operated at about 60% of capacity in 1987. Some cement plants have been making modifications to their operations, mainly to increase production but also to reduce the emission of pollutants.

The portland cement plant of Gebr. Leube Gartenau was to raise the capacity of its kiln line No. 2 from 820 to 1,050 tons per day. The other line was to shut down when the modification was completed. Perlmooser Cement Co. added a Polysius high-efficiency separator to its operations at Mannersdorf.

Lithium.—BBU took over the mining rights to the Koralpe lithium project from Mineral-Exploration GmbH (Minerex) in early 1987. The underground exploration and economic feasibility study was completed. Although the results were encouraging, the project was temporarily postponed because of the market situation and the weak dollar.

Other Industrial Minerals.—Veitscher Magnesitwerke AG was to invest an estimated $4 million[3] in its Breitenau facility to raise annual production of high-purity caustic magnesia (MgO) to 7,000 tons. The expansion program was to permit converting the MgO into high-purity (99.9%) magnesium hydroxide. Chemie-Linz AG awarded a contract to Uhde GmbH to design and construct a 1,600-ton-per-day nitrophosphate plant at Linz. Byproducts of the nitrophosphate process, such as ammonium nitrate and lime, were to be processed at the plant.

Talkumwerke Naintsch GmbH (TN) had three talc mines and plants, all in Styria. One 100,000-ton-per-year open pit talc operation was at Rahenwald. The underground operation at Lassing produced about 20,000 tons per year of a white dolomite talc. The underground operation near Weisskirchen produced about 20,000 tons per year of a polymineralic talc product containing chlorite, quartz, and mica. TN specialized in supplying micrograde talc for the paper, pulp, and paint industries and granular talc for the roofing industry. About 85% of production was exported.

MINERAL FUELS

Austria's energy situation was characterized by declining domestic production of fossil fuels and growing dependence on imported energy. Hydropower was the main indigenous energy source, covering more than 25% of tons of oil equivalent and more than 70% of Austrian electricity generation. Opposition to the construction of thermal electric plants for environmental reasons increased considerably in recent years. As a result, in 1987, two hydroelectric power stations, Wildungsmauer (245 megawatts) and Wolfsthal II (181 megawatts) were recommended. These plants were to be an alternative to the disputed Hainburg hydroelectric power project (360 megawatts) on the Danube River. The Wolfsthal project could only be realized in cooperation with Czechoslovakia. In addition to the above mentioned projects, there were about 45 hydroelectric projects (10 megawatts or larger) in the planning stage. These plans were in line with the policy objective of the Austrian Government to expand the exploitation of the country's hydropower potential.

Coal.—Prospecting and exploration for coal was supported by public funds. As a result, newly discovered reserves in recent years have replaced the coal that was produced. The Federal Government's financial support for coal mining has been reduced considerably in recent years to $2.1 million in 1987. Of this amount, 54% was allocated for prospecting and exploration and 24% each for development and social programs and the shutdown of mines. At yearend 1986, all categories of coal reserves, almost exclusively brown coal, were estimated at about 500 million tons, of which 10% was considered to be economic.

Brown coal was mined near Koflach in the West Styrian mining area, in upper Austria from the Trimmelkam deposit, and in the region of the Hausruck Range at Ampflwang. The coal was mined from both underground and open pit mines. Open pit mining operations were difficult because of the location of the mines in mountainous terrain and also because of the proximity to existing commercial and residential development. The largest consumer of brown coal in Austria was the electric power industry, which used about 70% of this energy source.

Wolfsegg-Traunthaler Kohlenwerke AG (WTK) completed construction of its washery plant in early 1987. However, operational problems delayed startup of the plant. WTK was considering construction of a second plant using a dry separation process to handle 20 millimeter-size fractions that cannot be treated in the washery plant. Graz-Köflacher Eisenbahn-und Bergbau Gesellschaft (GKB) was also considering construction of a dry separation processing plant to beneficiate part of the production from GKB's open pit mines.

Natural Gas.—Austria's proven natural gas reserves were estimated to be about 9 billion cubic meters at yearend 1986. These reserves were expected to produce at a declining rate for another 25 years. Production of natural gas, roughly 1.1 billion cubic meters per year, cannot be expanded more than marginally in the future. Natural gas was produced by OMV Aktiengesellschaft, accounting for 60% of production, and Rohol-Aufsuchungs GmbH (RAG), 40% of production. OMV was a state-owned company and RAG was owned equally by Mobil Oil Austria AG and Shell Austria AG. About 95% of gas imports was handled by OMV.

The first phase of the trans-Austrian pipeline (TAG) II was completed in 1987. This increased Austria's capacity for transshipment of Soviet natural gas to Western Europe from 14 to 17 billion cubic meters per year. By October 1988, capacity was expected to reach 20 billion cubic meters. In addition to TAG, Austria has the capacity to transship approximately 4.3 billion cubic meters of gas annually to France via the West-Austria-Gasleitung (WAG) pipeline. In light of Austria's role as an energy transit country, the Government was interested in seeing further construction of transit pipelines with foreign partners.

Petroleum.—Under a privatization law passed in July 1987, Österreichische Mineralölverwaltungs AG (OeMV), the state oil company, would be listed on the Vienna stock exchange and a 25% stake, worth about $190 million, would be offered to sale to investors. An unspecified percentage would also be offered foreign investors. Austria's only refinery in Schwechat near Vienna, with a capacity of 302,000 barrels per day, had about an 80% capacity utilization rate. The refinery was supplied with imported crude oil by a single pipeline from Italy.

Proven and probable reserves of petroleum declined to an estimated 110 million barrels at yearend 1986. The fall in oil prices has pushed down investments for exploration and prospecting. However, the Government reached a 5-year agreement with the producing companies to keep activities at a minimum level.

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[1]Physical scientists, Division of International Minerals.

[2]Values have been converted from Austrian schillings (S) to U.S. dollars at the rate of S12.5 = US$1.00, the average rate in 1987.

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